6/93

522

ecology and environment, inc.

SITE SAFETY PLAN

Version 988

A. GENERAL INFORMATION

Project Title: MCC Construction
Project No.: ZT3051
TDD/Pan No.: T05-9412-003/EIL
Project Manager: Karen Rydzewski
Project Dir.: Brad Stimple
Location(s): 2100 S. Kostner, Chicago, Cook Co., Illinois
Prepared by: Karen Rydzewski
Date Prepared: 12-9-94
Approval by: Debby J. Phelps
Date Approved: 12-9-94
Site Safety Officer Review:
Date Reviewed:
Scope/Objective of Work: Sample 2 drums & collect 2 soil samples from possible migration pathway; site recon.
Proposed Date of Field Activities: 12-9-94
Background Info: Complete: [ ] Preliminary (No analytical data available) [X]

Documentation/Summary:

Overall Chemical Hazard:	Serious [ ] Low [ ]	Moderate [ ] Unknown [X]
Overall Physical Hazard	Serious [ ] Low [ ]	Moderate [X] Unknown [ ]

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid [ ]	Solid [X]	Sludge [X]	Gas/Vapor [ ]

Characteristic(s):

Flammable/ Ignitable [X]	Volatile [X]	Corrosive [ ]	Acutely Toxic [ ]
Explosive [ ]	Reactive [X]	Carcinogen [X]	Radioactive* [ ]

Other:

Physical Hazards:

Overhead [ ]	Confined* Space [ ]	Below Grade [ ]	Trip/Fall [X]
Puncture [X]	Burn [ ]	Cut [X]	Splash [X]
Noise [ ]	Heat/Cold Stress [X]	Other:	

*Requires completion of additional form and special approval from the Corporate Health/Safety group. Contact RSC or HQ.

HS018A(04/02/91)

Site History/Description and Unusual Features (see Sampling Plan for detailed description): 15 drums found on abandoned construction company property. Drums contain tar- and resin-like materials. Site I.D. by IEPA.

Locations of Chemicals/Wastes: w/in fenced abandoned construction co. property.

Estimated Volume of Chemicals/Wastes: ~15 drums (55-gal.)

Site Currently in Operation Yes: [ ] No: [X]

C. HAZARD EVALUATION

List Physical Hazards by Task (i.e., drum sampling - explosion hazard, drilling - noise hazard, etc.) and number them. (Task numbers are cross-referenced in Section D).

Task/Physical Hazard Evaluation:

1. site recon: slip, trip, fall / cold stress
2. drum sampling: cut, puncture, splash, cold stress, splash
3. soil sampling: cut, puncture, trip, fall, cold stress
4.
5.
6.
7.
8.

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
PCBs	1 mg/m³	IH, IN, EC, SK	IR1, V, AB, N, F	N/A	N/A
Barium	.5 mg/m³	IH, IN, EC, SK	V, DI, W, Pain	N/A	N/A
Benzene	1 ppm	IH, IN, EC, SK	V, DZ, H, SK-IR	4.68 ppm	sweet
Polynuclear Aromatic	0.2 mg/m³	IH, [redacted], SK, EC	E/SK-IR	varied	varied

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminants. Codes for C.H.E. below:

AB = ABDOMINAL PAIN	DA = DERMAL ABSORPTION	IH = INHALATION	A = OCULAR
AC = ACHES	DI = DIARRHEA	IN = INGESTION	SK = SKIN CONTACT
AN = ANEMIA	DS = DISTRESSED STOMACH	IR1= IRR OF E/M/THROAT	U = ULCERATION
BV = BLURRED VISION	DP = CNS DEPRESSION	IR = IRRITATION	V = VOMITING
C = COUGHING	DR = DROWSINESS	E = EYES	M = MOUTH
W = WEAKNESS	CD = CONTACT DERMATITIS	DZ = DIZZINESS	CP = CHEST PAIN
H = HEADACHES	LC = LOSS OF CONSCIOUSNESS	RT = RESPIRATORY TRACT	N = NAUSEA
SB = SHORTNESS OF BREATH	OTHER: EC - eye contact	F = fatigue	

D. SITE SAFETY WORK PLAN

Site Control: Attach map, use back of this page, or sketch of site showing hot zone, contamination reduction, zone, etc.

Perimeter identified? [Y X] [N] Site secured? [Y X] [N]

Work Areas Designated? [X] [ ] Zone(s) of Contamination Identified? [ ] [X]

Personnel Protection (TLD badges required for all field personnel): TLD

Anticipated Level of Protection (Cross-reference task numbers to Section C):

	A	B	C	D
Task 1			X	X
Task 2		X	X	
Task 3			X	X
Task 4				

(Expand if necessary)

Modifications: Downgrade to level C for drum sampling if drums are already open. if air monitoring warrants

Action Levels for Evacuation of Work Zone Pending Reassessment of Conditions:

- Level D: O_2 <19.5% or >25%, explosive atmosphere >10% LEL, organic vapors above background levels, particulates >.025 mg/m³, other _____.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL_3 (California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates >_____ mg/m³, other _____.
- Level B: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors (in breathing zone) >500 ppm, particulates >_____ mg/m³, other _____.
- Level A: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors >500 ppm, particulates >_____ mg/m³, other _____.

Air Monitoring (daily calibration unless otherwise noted):

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling
Organic vapors	area	OVA/HNu	Continuous
	11		
Radiation	11	Rad-mini	11 (on recon)
Explosive Atmosphere	11	CGI	11
Radiation	Personal	TLD badge	11

(Expand if necessary)

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:

All disposable sampling equipment will be left on-site after being double-bagged. Non-disposable equipment will be washed in an alconox solution & triple-rinsed w/ Di water. Water will be kept to a minimum & will be left on-site.

Personnel Decon Protocol: Outer disposable clothing will be double-bagged + left on-site.

Decon Solution Monitoring Procedures, if Applicable: N/A

Special Site Equipment, Facilities, or Procedures (Sanitary Facilities and Lighting Must Meet 29 CFR 1910.120): None

Site Entry Procedures and Special Considerations: Permission will be obtained prior to site entry. Stay upwind of contamination when possible. The buddy system will be maintained at all times.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:

Work is restricted to daylight hours only and workers are to be monitored for heat/cold stress. When vermiculite is used to pack samples, dust masks will be worn.

General Spill Control, if applicable: N/A

Investigation-Derived Material Disposal (i.e., expendables, decon waste, cuttings):

Investigative-derived materials will be decontaminated in accordance with procedures listed above. The decontaminated material will be bagged and left on-site in appropriate waste containers with prior permission of site owner/operator

Sample Handling Procedures Including Protective Wear:

After samples have been collected, the outside of the sample bottles will be decontaminated by washing (not submerging) the bottles in an Alconox solution and rinsing in distilled water. The protective clothing level (i.e. suits, gloves, boots) worn during on-site job activities will be maintained while decontaminating the bottles. Respiratory protection will be worn based on professional judgement. Latex gloves, at a minimum, will be worn while handling the bottles after decontamination.

Team Member*	Responsibility
Karen Rydzewski	Team Leader
Donovan Robin	Site Safety Officer
Brad Stimple	OSC

*All entries into exclusion zone require Buddy System use. All E & E field staff participate in medical monitoring program and have completed applicable training per 29 CFR 1910.120. Respiratory protection program meets requirements of 29 CFR 1910.134, and ANSI Z88.2 (1980).

E. EMERGENCY INFORMATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

Ambulance 911

Hospital Emergency Room Rush-Presbyterian - St. Lukes, 1653 W. Congress Pky, 946-6428

Poison Control Center 911

Police (include local, county sheriff, state) 911

Fire Department 911

Airport Midway, Meigs

Agency Contact (EPA, State, Local USCG, etc.) EPA Brad Stimple

Local Laboratory NET Midwest 708-289-3100

UPS/Fed. Express 1-800-238-5355

Client/EPA Contact Brad Stimple

Site Contact N/A

SITE RESOURCES

Site Emergency Evacuation Alarm Method verbal or 3 blasts car horn

Water Supply Source To be supplied by TAT

Telephone Location, Number ~~N/A~~ TBD

Cellular Phone, if available N/A

Radio N/A

Other N/A

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (Univ. of Florida) ..... (501) 221-0465 or (904) 462-3277, 3281
   Alachua, Florida (501) 370-8263 (24 hours)

2. Ecology and Environment, Inc., Safety Director
   Paul Jonmaire ..... (716) 684-8060 (office)
   (716) 655-1260 (home)

3. Dean Tiebout, Regional Safety Coordinator, Chicago ..... (312) 663-9415 (office)
   (312) 338-4423 (home)

4. Jerry Oskvarek, Office Manager, Chicago ..... (312) 775-7040 (home)

5. Tom Kouris, TAT Leader, Chicago ..... (312) 201-3790 (office)
   (219) 924-1341 (home)

6. Pat Zwilling, ATATL, Chicago ..... (708) 587-5934 (home)

7. Ron Bugg, TAT Safety Officer, Chicago..... (219) 922-8836 (home)

MEDTOX HOTLINE

1. Twenty-four hour answering service: (501) 370-8263

   What to report:

   - State: "this is an emergency."
   - Your name, region, and site.
   - Telephone number to reach you.
   - Your location.
   - Name of person injured or exposed.
   - Nature of emergency.
   - Action taken.

2. A toxicologist, (Drs. Raymond Harbison or associate) will contact you. Repeat the information given to the answering service.

3. If a toxicologist does not return your call within 15 minutes, call the following persons in order until contact is made:

   a. 24 hour hotline - (716) 684-8940
   b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260
   c. Assistant Corp. Safety Officer - Steven Sherman - home # (716) 688-0084
   d. Chicago Health & Safety Manager - Dean Tiebout - home # (312) 338-4423

EMERGENCY ROUTES

(NOTE: Field Team must Know Route(s) Prior to Start of Work)

Directions to hospital (include map) Kostner North to I290; I290 East to Paulina/Ashland exit. Hospital on frontage road as you get off exit on the south.

Emergency Egress Routes to Get Off-Site _____

HSO18A(04/02/91)

Rush-Presbyterian - St. Luke
1653 W. Congress Pkwy
Chicago, IL 60612
312-942-6428


JOHN F. KENNEDY EXPRESSWAY
DWIGHT D. EISENHOWER EXPRESSWAY
ADLAI E. STEVENSON EXPRESSWAY
SITE
PAGE 1 OF 1
HOSPITAL MAP

ECOLOGY AND ENVIRONMENT, INC. - CHICAGO

Site Name: MCC Construction PAN/TDD#: ITO5-9412-003
Date: _____ Wind Direction: _____ Weather _____

EQUIPMENT	ID#	CALIB./OPER. CHECK	INITIALS & DATE	BACKGROUND READING	ON-SITE READING
OVA					
HNu					
Photovac Tube					
O2 Meter					
Exposimeter					
Combo-meter					
Rad-MINI					
Monitor-4					
Draeger tubes					
Monitox					
OTHERS:					

Attendees at Site: _____

Protective Clothing Worn: _____

Comments on Monitoring or Protective Clothing (ex: Was the monitoring equipment possibly effected by the weather?) _____

Team Leader _____ (Print Name) _____ (Signature) _____ (Date)

Site Safety Officer _____ (Print Name) _____ (Signature) _____ (Date)

Please submit the original to Ron Bugg and a copy to the project file

(Revised 4/3/92)

SITE DOSIMETER LOG

PROJECT/PAN # _____ SITE NAME _____

SITE SAFETY OFFICER _____ WEEK OF _____

NAME AND DOSIM. #	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY

To the nearest half-hour, record time spent downrange as "S" (e.g., S:2.5hrs), time spent in active PDS operation as "P", and any time spent downrange in rescue activity as "R".

HS005(2/24/89)

Taking ER van - all equipment in van

Warehouse Phone (312) 775-7763

F. EQUIPMENT CHECKLIST

Job/PAN ZT3051

Team Leader K. Rydzewski

PROTECTIVE GEAR

Level A	No.
SCBA	
SPARE AIR TANKS	
ENCAPSULATING SUIT (Type _____)	
SURGICAL GLOVES (Latex)	
NEOPRENE SAFETY BOOTS	
BOOTIES (Latex)	
GLOVES: Type _____ SM _____ M _____ L _____	
OUTER WORK GLOVES	
CASCADE SYSTEM	
5-MINUTE ESCAPE MASK	
COOLING VEST	
HARD HAT	
Level C	
ULTRA-TWIN RESPIRATOR	2
POWER AIR PURIFYING RESPIRATOR	
CARTRIDGES (Type GMC-H)	1 box
PROTECTIVE COVERALL: Type Saranex SM _____ M _____ L _____	3
BUTYL APRON	
SURGICAL GLOVES (LATEX)	
GLOVES: Type Nitrile SM _____ M _____ L X	8 pr
OUTER WORK GLOVES	
GLOVE LINERS Latex	1 box
FACE SHIELD	
HARDHAT	2
RAIN SUIT	
NEOPRENE SAFETY BOOTS	
BOOTIES (LATEX)	3 pr.
STEEL TOED BOOTS	2

Level B	No.
SCBA	3
SPARE AIR TANKS	3
PROTECTIVE COVERALL: Type Saranex SM _____ M _____ L X	
BUTYL APRON	
SURGICAL GLOVES (LATEX)	1 box
GLOVES: Type Nitrile SM _____ M _____ L X	8 pr
NEOPRENE SAFETY BOOTS	
BOOTIES (LATEX)	3 pr
HARD HAT	2
FACE SHIELD	
MANIFOLD SYSTEM WITH AIRLINE	
CASCADE SYSTEM	
RAIN SUIT	
OUTER WORK GLOVES	
Level D	
ULTRA-TWIN RESPIRATOR (Available)	2
CARTRIDGES (Type GMC-H)	1 box
5-MINUTE ESCAPE MASK (Available)	
PROTECTIVE COVERALL: Type Saranex SM _____ M _____ L _____	
OUTER WORK GLOVES	
HARD HAT	
FACE SHIELD	
RAIN SUIT	
WINTER BOOTS	
BOOTIES (LATEX)	
NEOPRENE SAFETY BOOTS	
STEEL TOED BOOTS	
SAFETY GLASSES	

RS018D(05/30/89)

INSTRUMENTATION	No.	DECON EQUIPMENT	No.
OVA		WASH TUBS	
THERMAL DESORBER		BUCKETS	
O2/EXPLOSIMETER W/CAL. KIT		SCRUB BRUSHES	
PHOTOVAC TIP		PRESSURIZED SPRAYER	
HNu (Probe 10.2 OR 11.7)		DETERGENT (Type _____)	
MAGNETOMETER		SOLVENT (Type _____)	
PIPE LOCATOR		PLASTIC SHEETING	
WEATHER STATION		TARPS AND POLES	
DRAEGER PUMP, TUBES _____		TRASH BAGS	
BRUNTON COMPASS		TRASH CANS	
MONITOX CYANIDE		MASKING TAPE	
HEAT STRESS MONITOR		DUCT TAPE	
NOISE EQUIPMENT _____		PAPER TOWELS	
PERSONAL SAMPLING PUMPS (Type_____)		FACE MASK SANITIZER	
DUST MONITOR (MDA OR GCA System)		FOLDING CHAIRS	
		STEP LADDERS	
RADIATION EQUIPMENT		DISTILLED WATER	
TLD BADGES			
DOCUMENTATION FORMS			
PORTABLE RATEMETER			
SCALER/RATEMETER		SAMPLING EQUIPMENT	
NaI Probe		80 OZ. AMBER GLASS BOTTLES	
ZnS Probe		1 L. AMBER GLASS BOTTLES	
GM Pancake Probe		40 ML. VIALS	
GM Side Window Probe		1 L. PLASTIC	
MICRO R METER / RAD-MINI		8 OZ. GLASS	
ION CHAMBER		120 ML. GLASS	
ALERT DOSIMETER		SPOONS	
POCKET DOSIMETER		KNIVES	
		FILTER PAPER	
FIRST AID EQUIPMENT		PERSONAL SAMPLING PUMP SUPPLIES	
FIRST AID KIT		BUCK CALIBRATOR	
OXYGEN ADMINISTRATOR		HAND BAILERS	
STRETCHER		THIEVING RODS WITH BULBS	
PORTABLE EYE WASH		DIOXIN SAMPLE KIT	
BLOOD PRESSURE MONITOR		PRESERVATIVES: HNO3___ NaOH___ Other___	
FIRE EXTINGUISHER		STRING	

VAN EQUIPMENT	No.
TOOL KIT	
HYDRAULIC JACK	
LUG WRENCH	
TOW CHAIN	
VAN CHECK OUT	
Gas	
Oil	
Antifreeze	
Battery	
Windshield Wash	
Tire Pressure	
MISCELLANEOUS	
CHALK	
LEVEL/TRIPOD AND ROD	
BOWLS	
PITCHER PUMP	
SURVEYOR'S TAPE	
100 FIBERGLASS TAPE	
300 NYLON ROPE	
NYLON STRING	
SURVEYING FLAGS	
FILM	
WHEEL BARROW	
BUNG WRENCH	
SOIL AUGER	
PICK	
SHOVEL	
CATALYTIC HEATER	
PROPANE GAS	
BANNER TAPE	
SURVEYING METER STICK	
CHAINING PINS & RING	
TABLES	
WEATHER RADIO	
BINOCULARS	
MEGAPHONE	

MISCELLANEOUS (Cont.)	No.
HEARING PROTECTION	
LIFE VESTS	
WALKIE-TALKIE	
CONDUCTIVITY METER	
PH METER	
CAMERA	
WATER-LEVEL INDICATOR	
SPLIT SPOON SAMPLERS	
PVC HAND PUMP	
RESISTIVITY METER	
WELL POINT SAMPLER	
ROBAIR PUMP SYSTEM	
THERMOMETER	
MASTERFLEX PUMP & FILTER APPARATUS	
SHIPPING EQUIPMENT	
COOLERS	
PAINT CANS WITH LIDS, 7 CLIPS EACH	
VERMICULITE	
DUST MASK	
SHIPPING LABELS	
DOT LABELS: "DANGER"	
"UP"	
"INSIDE CONTAINER COMPLIES ..."	
"HAZARD GROUP"	
STRAPPING TAPE	
BOTTLE LABELS	
BAGGIES	
CUSTODY SEALS	
CHAIN-OF-CUSTODY FORMS	
FEDERAL EXPRESS FORMS	
CLEAR PACKING TAPE	

Vehicle Safety Checklist
Ecology & Environment, Inc.
Chicago Office

Date: _____ Time: _____ Odometer: _____

Vehicle Model: _____ Color: _____ License Plate No. _____

INTERIOR:
____ All Safety Belts-Proper Locking
____ Parking Brake

START ENGINE:
____ Oil Pressure
____ Instrument Panel (Warning Lights or Buzzers)
____ Horn
____ Windshield Wiper & Washer
____ Heater/Defroster
____ Mirrors
____ Steering (Loose)
____ Interior Lights
____ Emergency Flashers
____ Starts Properly

FRONT:
____ Headlights (Dim/Bright)
____ Turn Signals
____ Emergency Flashers

REAR:
____ Tail Lights
____ Brake Lights
____ Back up Lights
____ Turn Signals
____ Emergency Flashers

MECHANICAL OPERATION:
____ Engine (misses, knocks, etc.)
____ Check Oil
____ Water/Anti-freeze
____ Viper Fluid
____ Brake Fluid

OUTSIDE:
____ Tires (properly inflated)
____ Gas Tank Cap

EMERGENCY EQUIPMENT:
____ Fire Extinguisher
____ First Aid Kit
____ Flags, Flares,
____ Spare tire (properly inflated)
____ Tire Changing Kit (jack, tools, etc.)

REMARKS:
_____
_____
_____
_____
_____
_____
_____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) signature

SITE NAME/ADDRESS: _____

PAN/JOB NUMBER: _____

RETURN OF VEHICLE TO DUTY STATION

Vehicle Cleanliness: _____

Remarks: _____
_____
_____
_____

Corrections Necessary: _____
_____

TEAM MEMBER/OPERATOR: _____ / _____
(print name) signature

Date: _____ Time: _____ Odometer: _____

WASTE-DISPOSAL METHODS

The disposal methods outlined below are intended only as guides. We do not assume responsibility for their use. Careful consideration must be given to the chemical and physical properties of the substance. In addition, local laws and regulations may preclude the use of these methods which are primarily designed for small quantities. Observe all federal, state, and local laws.

The disposal of some chemicals may require deactivation or modification of the material by chemical means. Chemical waste-disposal reactions must be handled with the same care and consideration used with synthetic procedures. Appropriate consideration must be given to reaction conditions, *i.e.*, stoichiometry, order and rate of addition, heat of reaction, evolution of gaseous products, pH, efficiency of stirring, rate of reaction, atmospheric sensitivity, etc.

Chemical waste-disposal reactions should be carried out in a chemical fume hood and in appropriate laboratory glassware. Because these reactions are often vigorous, protective safety equipment such as safety goggles, respirator, gloves, face and/or safety shield and other protective equipment must be used.

Initial reactions in a disposal sequence should be carried out on a small scale (5-10g). The reactant concentrations should not exceed 10% of the reaction volume and the final reaction volume should not exceed 50% of the working capacity of the reaction vessel, regardless of the reaction scale. Larger quantities of the material should be handled in several small-size reactions. To ensure completion of reaction, the waste disposal procedure should be run for at least an additional 4 to 8 hours after all materials have been mixed.

All reactions should be run by technically qualified persons familiar with the potential hazards of the chemical reactions.

A Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

B The material should be ignited in the presence of *sodium carbonate and slaked lime (calcium hydroxide)*. The substance should be mixed with vermiculite and then with the dry caustics, wrapped in paper and burned in a chemical incinerator equipped with an afterburner and scrubber.

C This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

D Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

E To a solution of the product in water, add an excess of *dilute sulfuric acid*. Let stand overnight. Remove any insolubles and bury in a landfill site approved for hazardous-waste disposal.

F Cautiously dissolve the material in water. Neutralize immediately with sodium carbonate or, if the material does not dissolve completely, add a little hydrochloric acid followed by sodium carbonate. Add calcium chloride in excess of the amount needed to precipitate the fluoride and/or carbonate. Separate the insolubles and bury in a landfill site approved for hazardous-waste disposal.

G Under an inert atmosphere, cautiously add the material to dry butanol in an appropriate solvent. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for venting of large volumes of highly flammable hydrogen and/or hydrocarbon gases. Neutralize the solution with aqueous acid. Filter off any solid residues for disposal as hazardous waste. Burn the liquid portion in a chemical incinerator equipped with an afterburner and scrubber.

H Neutralize the solution and add filtering agent (10g per 100ml). Evaporate the liquid and bag the residual solid for burial in a landfill site approved for hazardous-waste disposal.

I Dissolve the solid in (or dilute the solution with) a large volume of water. Carefully add a dilute solution of acetic acid or acetone to the mixture in a well ventilated area. Provisions should be made to vent safely the hydrogen gas given off during the decomposition. Check acidity of the solution and adjust to pH 1 if necessary. Let stand overnight. Neutralize the solution (pH 7). Evaporate the solution and bury the residue in a landfill site approved for hazardous-waste disposal.

J Cautiously acidify a 3% solution or a suspension of the material to pH 2 with sulfuric acid. Gradually add a 50% excess of aqueous sodium bisulfite with stirring at room temperature. An increase in temperature indicates that a reaction is taking place. If no reaction is observed on the addition of 10% of the sodium bisulfite solution, initiate it by cautiously adding more acid. If manganese, chromium, or molybdenum is present, adjust the pH of the solution to 7 and treat with sulfide to precipitate for burial as hazardous waste. Destroy excess sulfide, neutralize and flush solution down the drain.

K Please contact the Technical Services Department. Be sure to mention name, catalog number and quantity of the material.

L The material should be dissolved in 1) water; 2) acid solution or 3) oxidized to a water-soluble state. Precipitate the material as the sulfide, adjusting the pH of the solution to 7 to complete precipitation. Filter the insolubles and dispose of them in a hazardous-waste site. Destroy any excess sulfide with sodium hypochlorite. Neutralize the solution before flushing down the drain.

M A slurry of the arenediazonium salt with water can be disposed of by adding it gradually to a stirred solution of 5-10% excess 2-naphthol in 3% aqueous sodium hydroxide at 0-20°C. After 12 hours, the resulting azo dye is filtered and either incinerated or buried in a landfill site approved for hazardous-waste disposal. Neutralize the remaining solution before disposal.

N For small quantities: cautiously add to a large stirred excess of water. Adjust the pH to neutral, separate any insoluble solids or liquids and package them for hazardous-waste disposal. Flush the aqueous solution down the drain with plenty of water. The hydrolysis and neutralization reactions may generate heat and fumes which can be controlled by the rate of addition.

O Bury in a landfill site approved for the disposal of chemical and hazardous waste.

P Material in the elemental state should be recovered for reuse or recycling.

Q Cautiously make a 5% solution of the material in water or dilute acid. There may be a vigorous, exothermic reaction and fumes may be generated due to the hydrolysis of the material. Control any reaction by cooling and by the rate of addition of the material. Gradually add dilute ammonium hydroxide to pH 10. Filter off any precipitate for disposal in a chemical landfill. If there is no precipitation, gradually adjust the pH from 10 to 6, stopping when precipitation occurs.

R Catalysts and expensive metals should be recovered for reuse or recycling.

S Treat a dilute basic solution (pH 10-11) of the material with a 50% excess of commercial laundry bleach. Control the temperature by the addition rate of bleach and adjust pH if necessary. Let stand overnight. Cautiously adjust solution to pH 7. Vigorous evolution of gas may occur. Filter any solids for burial in a chemical landfill. Precipitate any heavy metals by addition of sulfide and isolate for burial. Additional equivalents of hypochlorite may be needed if the metal can be oxidized to a higher valence state. For metal carbonyls, the reaction should be carried out under nitrogen.

T Cautiously make a 5% solution of the product in water; vent because of possible vigorous evolution of flammable hydrogen gas. Acidify the solution to pH 1 by adding 1*M* sulfuric acid dropwise. Acidification will cause vigorous evolution of hydrogen gas. Allow the solution to stand overnight. Evaporate the solution to dryness and bury the residue in a landfill site approved for hazardous-waste disposal.

U Take the material (or a solution) and make a 5% solution in tetrahydrofuran. Cautiously add the solution dropwise to an ice-cooled, stirred basic solution of commercial bleach. Oxidation may release flammable hydrocarbon gases which must be vented. Let stand overnight. Adjust the pH to 7 and destroy excess hypochlorite with sodium bisulfite before disposal of the solution.

V Under an inert atmosphere cautiously add dry butanol or a mixture of dry butanol in an appropriate solvent, to a solution of the material in tetrahydrofuran. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for the venting of a large volume of flammable hydrogen gas. When gas evolution ceases, cautiously add a basic hypochlorite solution dropwise to the reaction solution. Let stand overnight. Neutralize the solution and treat with sodium bisulfite to destroy any excess hypochlorite. Filter any solids for burial in a landfill site approved for hazardous-waste disposal.

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

PROCEDURES FOR SPILLS OR LEAKS

1 Absorb on sand or vermiculite and place in closed container for disposal.
2 Cover with dry lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors.
3 Shut off all sources of ignition.
4 Evacuate area.
5 Cover with an activated carbon adsorbent, take up and place in closed container. Transport outdoors.
6 Ventilate area and wash spill site after material pickup is complete.
7 Sweep up, place in a bag and hold for waste disposal.
8 Avoid raising dust.
9 Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
10 Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.
11 Cover with dry lime or soda ash, pick up, keep in a closed container and hold for waste disposal.
12 Carefully sweep up and remove.
13 Flush spill area with copious amounts of water.
14 Mix with solid sodium bicarbonate.
15 Place in appropriate container.
16 Wear protective equipment.
17 Wash spill site with soap solution.
18 Please contact the Technical Services Department. Be sure to mention the name and catalog number of the material.

FIRE-EXTINGUISHING MEDIA

1 Carbon dioxide.
2 Dry chemical powder.
3 Water spray.
4 Alcohol or polymer foam.
5 Class D fire-extinguishing material only.
6 Water may be effective for cooling, but may not effect extinguishment.
7 Carbon dioxide, dry chemical powder, alcohol or polymer foam.
8 Foam and water spray are effective but may cause frothing.
9 Do not use dry chemical powder extinguisher on this material.
10 Do not use carbon dioxide extinguisher on this material.
11 Noncombustible.
12 Do not use water.
13 Use extinguishing media appropriate to surrounding fire condition

Z14,866-0

Sigma-Aldrich Corporation, P.O. Box 355, Milwaukee, Wisconsin 53201 USA
(Sigma: 314-771-5765; Aldrich: 414-273-3850)

Ecology and Environment, Inc.
Hazard Evaluation of Chemicals
Region V - Chicago

DATE : / /
JOB NO: _____

CHEMICAL NAME

SYN :
CAS NO: FORMULA:
DOT CLASS:

CHEMICAL PROPERTIES

Phys St:	Boil Pt:	Ionz Pot :	Fl Pt:
Mol Wt :	Melt Pt:	Vap Press:	LFL :
Sp Gr :	Frz Pt :	Odr Thr :	UFL :

Odor :
INCOMPAT/REACT:
SOLUBILITY :

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): PEL (OSHA): STEL: IDLH:

Tox Data: INHAL :
DERMAL :
ORAL :
CARCIN :
MUTAGEN :
REPRO TOX:
AQUATIC :
OTHER TOX:
ROUTES OF EXP:

PERSONAL PROTECTIVE MEASURES

RESPIRATORS :
CARTRIDGE TYPE :
PROTECTIVE CLOTHING:
SPEC PRECAUTIONS :

FIRST AID

INHALATION:
EYE/SKIN :
INGESTION :

SYMPTOMS

ACUTE :

CHRONIC:

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: FIRE: LEAKS & SPILLS:
DECOMPOSITION PRODUCTS:

REFERENCES CONSULTED

LAST REVISION DATE:
/ /

CHEMICAL CLASSIFICATION:

Site Name _____

Job No. _____

TDD/PAR _____

CHEMICAL HAZARD EVALUATION (Continued)

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description

ecology and environment. inc.

JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 4-12-89

CHEMICAL NAME: BARIUM

CAS NUMBER: DOT NAME/ID NO.: 1400 RQ:

SYNONYMS: METALLIC BARIUM, BARIUM METAL

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: BA MOLECULAR WEIGHT: 137.36 PHYSICAL STATE: SOLID SPG/D 3.5 SOLUBILITY (H20): REACTS

VAPOR PRESS: 10MM FREEZING POINT: 1337 F BOILING POINT: FLASH POINT: FLAM SOLID FLAMMABLE LIMITS:

ODOR CHARACTERISTICS:

INCOMPATABILIITIES: REACTS WITH WATER RELEASING TOXIC GASES. AMMONIA, OZ,HALOGENS,ACIDS METAL IN POWDERED FORM IS EXPLOSIVE

BIOLOGICAL PROPERTIES:

IDLH: 250 MG/M3 TLV-TWA: 0.5 MG/M3 PEL: 0.5 MG/M3 ODOR THRESHOLD:

HUMAN (LCLO): RAT/MOUSE (LC50): AQUATIC:

CARCINOGEN: TERATOGEN: MUTIGEN:

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

PREVENT SKIN CONTACT, WEAR GLOVES, IMPERVIOUS CLOTHING

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: SOLUBLE BARIUM COMPOUNDS ARE PRIMARY SKIN IRRITANTS AND CONVULSANT POISONS. MAY CAUSE LOCAL IRRITATION OF EYES, NOSE, THROAT, BRONCHIAL TUBES AND SKIN. SOLUBLE BARIUM COMPOUNDS MAY ALSO CAUSE SEVERE STOMACH PAINS, SLOW PULSE RATE, IRREGULAR HEART BEAT,

ACUTE SYMPTOMS: TIGHTNESS OF NECK AND FACIAL MUSCLES, VOMITTING, DIARRHEA, PAIN, WEAKNESS, CARDIAC DISTURBANCES AND CONVULSIONS

CHRONIC SYMPTOMS: NO CHRONIC POISONING HAS BEEN REPORTED

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH IMMEDIATELY WITH SOAP AND WATER

INGESTION: GIVE LARGE QUANTITIES OF WATER; INDUCE VOMITING; SEEK MEDICAL ATTENTION

DISPOSAL/WASTE TREATMENT:

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [ ] HAZARDLINE [ ] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [ ] CHRIS [ ] SAX

[ ] NIOSH/OSHA POCKET GUIDE

[ ] OTHER: OHS DATABASE

ecology and environment, inc.

JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 5-8-90

CHEMICAL NAME: BENZENE

CAS NUMBER: 71-43-2 DOT NAME/ID NO.: RQ:

SYNONYMS: BENZOL, BENZOLE, CYCLOHEXATRIENE, BENZOLENE, BICARBURET OF HYDROGEN, CARBON OIL, COAL NAPHTHA

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C6H6 MOLECULAR WEIGHT: 78 PHYSICAL STATE: LIQUID SPG/D 0.879 SOLUBILITY (H20): SLIGHTLY

VAPOR PRESS: 75MM FREEZING POINT: 42 F BOILING POINT: 176 F FLASH POINT: 12 F FLAMMABLE LIMITS: 1.3-7.1%

ODOR CHARACTERISTICS: 4.68 PPM

INCOMPATABLIIITIES: STRONG OXIDIZERS, CHLORINE, BROMINE

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA: 10 PPM PEL: 1 PPM ODOR THRESHOLD:

HUMAN (LCLO): TCLO 100/CNS RAT/MOUSE (LC50): TCLO 50/ AQUATIC:

CARCINOGEN: HUMAN-SUS TERATOGEN: MUTIGEN: EXPER

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

10 PPM USE SCBA, USE PROTECTIVE CLOTHING, EXCEL-VITON;GOOD-NEOPRENE, SARANAX; POOR-BUTYL, NATURAL RUBBER FOR GLOVES, AVOID SKIN/EYE CONTACT

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: CAN CAUSE DIZZINESS, EUPHORIA, GIDDINESS, HEADACHE, NAUSEA, STAGGERING GAIT, WEAKNESS, DROWSINESS, RESPIRATORY IRRITATION, PULMONARY EDEMA AND PNEUMONIA, GASTROINTESTINAL IRRITATION, CONVULSIONS, AND PARALYSIS. CAN ALSO CAUSE IRRITATION TO SKIN, EYES

ACUTE SYMPTOMS: SKIN IRRITANT, CNS DEPRESSANT, MOSTLY IHL, INITIAL EXCITATION FOLLOWED BY HEADACHE, DIZZINESS, VOMITING, DELIRIUM, SEVERE EXPOSURE MAY SEE TREMORS, BLURRED VISION, SHALLOW RESP, CONVULSIONS

CHRONIC SYMPTOMS: ANOREXIA, DROWSINESS, ANEMIA, BLEEDING UNDER SKIN, REDUCED BLOOD CLOTTING;LIVER, KIDNEY, BONE MARROW DAMAGE, LEUKEMIA

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: DO NOT INDUCE VOMITING, GIVE WATER OR MILK, GET MEDICAL ATTENTION IMMEDIATELY

DISPOSAL/WASTE TREATMENT:

TOXIC FUMES OF CARBON DIOXIDE, CARBON MONOXIDE

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [X] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [ ] CHRIS [ ] SAX
[X] NIOSH/OSHA POCKET GUIDE
[ ] OTHER: CHRIS (VOL III), SAX, ALDRICH, RTECS

ecology and environment. inc.

JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 6/07/93

CHEMICAL NAME: Polynuclear Aromatics

CAS NUMBER: Various DOT NAME/ID NO.: RQ:

SYNONYMS: Anthracene, Chrysene, Pyrene, Indenol

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: CxHx MOLECULAR WEIGHT: Var. PHYSICAL STATE: Liquid SPG/D Var. SOLUBILITY (H20): insoluable

VAPOR PRESS: 1.17-1.2 FREEZING POINT: BOILING POINT: Varied FLASH POINT: FLAMMABLE LIMITS: 0.6-?

ODOR CHARACTERISTICS: Varied

INCOMPATABILIITIES: Strong Oxidizers

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA: PEL: 0.2mg/m3 ODOR THRESHOLD:

HUMAN (LCLO): RAT/MOUSE (LC50): AQUATIC:

CARCINOGEN: X TERATOGEN: X MUTIGEN: X

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [ ] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Respiratory protection with GMC-H cartridges, skin protection (gloves and coveralls)

MONITORING RECOMMENDATIONS:

Particulates in air - miniram

HEALTH HAZARDS:

ACUTE SYMPTOMS: Eye/skin irritation, dermatitis, photosensitization

CHRONIC SYMPTOMS: Carcinogenic effects

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION:

DISPOSAL/WASTE TREATMENT:

Segregate contaminated materials, double bag, dispose of as hazardous material

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [ ] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [X] CHRIS [ ] SAX

[X] NIOSH/OSHA POCKET GUIDE

[ ] OTHER: Pattys Industrial Hygiene and Toxicology

ecology and environment. inc.

JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 5-23-90

CHEMICAL NAME: POLYCHLORINATED BIPHENYL

CAS NUMBER: 53469-21-9 DOT NAME/ID NO.: RQ:

SYNONYMS: AROCHLOR 1242/42% CHLORINE, CHLORODIPHENYL

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C12H7C13 MOLECULAR WEIGHT: 258 PHYSICAL STATE: DARK LIQUID SPG/D 1.3 SOLUBILITY (H20): INSOLUBLE

VAPOR PRESS: 001 MM FREEZING POINT: -2 F BOILING POINT: 617-691 F FLASH POINT: 349 F FLAMMABLE LIMITS: UNKNOWN

ODOR CHARACTERISTICS:

INCOMPATABILIITIES: STRONG OXIDIZERS

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA: 1 MG/M3 PEL: 1 MG/M3 ODOR THRESHOLD:

HUMAN (LCLO): 10 MG/M3 RAT/MOUSE (LC50): AQUATIC: 278 PPM

CARCINOGEN: SUS-HUM TERATOGEN: MUTIGEN: ANIM-POS

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

ANY DETECTABLE LIMIT - SCBA, EXCEL-VITON;GOOD-BUTYL, VINYL, NITRILE; POOR-NEOPRENE, SAFETY GOGGLES, CLOTHING TO AVOID CONTACT

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS:

ACUTE SYMPTOMS: IRRITATION OF EYES, NOSE, THROAT, CAN CAUSE VOMITING, EDEMA, ANOREXIA, NAUSEA, ABDOMINAL PAIN, FATIGUE

CHRONIC SYMPTOMS: CHLORACNE FROM PROLONGED SKIN CONTACT, ACUTE & CHRONIC EXPOSURE MAY CAUSE LIVER DAMAGE OR CANCER

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GARGLE WITH WATER AND USE SEDATIVE COUGH MIXTURE

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: GIVE LARGE QUANTITIES OF SALT WATER; INDUCE VOMITING; SEEK MEDICAL ATTENTION

DISPOSAL/WASTE TREATMENT:

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [ ] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [X] CHRIS [X] SAX
[X] NIOSH/OSHA POCKET GUIDE
[ ] OTHER: RTECS

SITE SAFETY MEETING
(Must be filled out by Site Safety Officer at the site)

Project MCC Construction TDD: T05-9412-003 PAN #:

Site Safety Officer : Donovan Robin Date _____ Time

Address: Kosther Ave

Type of Work: Sample drums and

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: SAR Ahex, boots, Nitrile gloves

Chemical Hazards: to be determined via Air monitoring

Physical Hazards: Slip trip / puncture

Radiation Hazards: Abd. none yet known

Emergency Procedures: 911

Hospital/Clinic: Rush Presby Telephone: 946-6428

Hospital Address: 1653 W. Congress Emergency Telephone #: _____

Special Equipment: _____

Others: _____

Checklist

1. Emergency information reviewed? (Y) / N and made familiar to all team members? (Y) / N
2. Route to nearest hospital explained and reviewed? (Y) / N and its location known to all team members? (Y) / N
3. Site safety plan readily available and its location known to all team members? (Y) / N

The site safety meeting shall be attended by all personnel who will be working within the site area. Daily informational update meetings will be held when site tasks and conditions change.

ATTENDANCE

PRINT NAME	SIGNATURE	DATE
Donovan Robin		
Karen Rybakowski	Karen Rybakowski	12-9-94

MEETING CONDUCTED BY: _____ _____ _____

Revised (4/3/92)